IN THE CLAIMS

Amendm nts t the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Claim 1 (Cancelled):

Claim 2 (Cancelled):

Claim 3 (Cancelled):

Claim 4 (amended): The proximity monitoring system of Claim 29 wherein said magnetic field is a composite magnetic field summing a first magnetic field component from said first transmitter antenna, a second magnetic field component from said second transmitter antenna, and a third magnetic field component from said third transmitter antenna.

Claim 5 (original): The proximity monitoring system of Claim 4 wherein each of said first magnetic field component, said second magnetic field component, and said third magnetic field component is continuously transmitted using a single carrier frequency.

Claim 6 (original): The proximity monitoring system of Claim 5 wherein said single carrier frequency is uniquely modulated for each of said first magnetic field component, said second magnetic field component, and said third magnetic field component.

Claim 7 (original): The proximity monitoring system of Claim 5 wherein said single carrier frequency is a programmable integral multiple of a power supply line frequency.

Claim 8 (original): The proximity monitoring system of Claim 5 wherein said single carrier frequency is derived from a crystal oscillator using a phase locked loop.

Claim 9 (original): The proximity monitoring system of Claim 5 wherein said single carrier signal is modulated using a binary phase shift keying waveform.

Claim 10 (riginal): The proximity monitoring system of Claim 9 wherein a coherent said binary phase shift keying waveform is modulated using a waveform produced by integral ratio frequency division of a transmitter system clock.

Claim 11 (original): The proximity monitoring system of Claim 9 wherein said binary phase shift keying waveform is selected to produce a high degree of rejection of interference at a power line frequency and any significant harmonics of the power line frequency and to allow accurate decomposition of said composite magnetic field into said first magnetic field component, said second magnetic field component, and said third magnetic field component.

Claim 12 (amended): The proximity monitoring system of Claim 29 wherein said first transmitter antenna, said second transmitter antenna, and said transmitter third antenna are constructed using antenna coils having substantially similar dimensions.

Claim 13 (amended): The proximity monitoring system of Claim 29 wherein one of said first transmitter antenna, said second transmitter antenna, and said transmitter third antenna is constructed from a pair of said antenna coils.

Claim 14 (Cancelled):

Claim 15 (Cancelled):

Claim 16 (amended): The proximity monitoring system of Claim 30 wherein said receiver is fabricated on a single integrated circuit including an input amplifier, an I and Q baseband converter, a phase locked loop, a crystal oscillator, a baseband pass filter, and an I and Q baseband amplifier.

Claim 17 (original): The proximity monitoring system of Claim 16 wherein said receiver further includes a baseband sigma delta modulator for producing an I and Q bit stream.

Claim 18 (original): The proximity monitoring system of Claim 17 wherein said receiver further includes a sigma delta converter digital filter for sampling said I and Q

bit stream down to a sampling frequency that is nominally equivalent to twice a power line frequency.

Claim 19 (original): The proximity monitoring system of Claim 16 wherein said I and Q baseband converter is a switching mixer.

Claim 20 (previously amended): The proximity monitoring system of Claim 16 wherein said receiver further includes an analog-to-digital converter in electrical communication with said I and Q baseband converter, said receiver module further comprising a digital signal processor in electrical communication with said analog-to-digital converter, said analog-to-digital converter producing an digital I and Q baseband signal from an output of said I and Q baseband converter.

Claim 21 (original): The proximity monitoring system of Claim 20 wherein said digital signal processor extracts each of said first magnetic field component, said second magnetic field component, and said third magnetic field component from said digital I and Q baseband signal.

Claim 22 (original): The proximity monitoring system of Claim 21 wherein said receiver module is carried by a pet, said receiver module further comprising a stimulus delivery system for applying a deterrent stimulus to the pet when the pet approaches said boundary.

Claim 23 (original): The proximity monitoring system of Claim 16 wherein said receiver includes detection logic to detect an unusually rapid decrease in said total power of said magnetic field incident at said antenna array thereby indicating a loss of power to said transmitter.

Claim 24 (cancelled)

Claim 25 (cancelled)

Claim 26 (cancelled)

Claim 27 (cancelled)

Claim 28 (riginal): A proximity monitoring system capable of accurate boundary detection that is substantially independent of orientation, said proximity monitoring system comprising:

a transmitter including at least one antenna array, said transmitter generating an electrical signal, said transmitter antenna array continuously generating a magnetic field based on said electrical signal, said magnetic field having an intensity and defining a boundary, said transmitter connected to a power supply line having a frequency; and

a receiver module including an antenna array responsive to said magnetic field in electrical communication with a receiver, a measurement circuit for determining a total power of said magnetic field incident at said antenna array, and a digital signal processor for extracting components of said magnetic field and rejecting interference induced from said power supply line frequency.

Claim 29 (Re-presented - formerly dependent claim 3): A proximity monitoring system capable of accurate boundary detection that is substantially independent of orientation, said proximity monitoring system comprising:

a transmitter including at least one antenna array, said transmitter generating an electrical signal, said transmitter antenna array continuously generating a magnetic field based on said electrical signal, said magnetic field having an intensity and defining a boundary; said transmitter at least one antenna array includes a first transmitter antenna representing a first coordinate axis, a second transmitter antenna representing a second coordinate axis, and a third transmitter antenna representing a third coordinate axis; and

a receiver module including an antenna array responsive to said magnetic field in electrical communication with a single channel receiver and a measurement circuit for determining a total power of said magnetic field incident at said antenna array.

Claim 30 (Re-presented - formerly dependent claim 14): A proximity monitoring system capable of accurate boundary detection that is substantially independent of orientation, said proximity monitoring system comprising:

a transmitter including at least one antenna array, said transmitter generating an electrical signal, said transmitter antenna array continuously generating a magnetic field based on said electrical signal, said magnetic field having an intensity and defining a boundary; and

a receiver module including an antenna array responsive to said magnetic field in electrical communication with a single channel receiver and a measurement circuit for determining a total power of said magnetic field incident at said antenna array, said receiver antenna array includes a two-axis, single output magnetic field sensing antenna producing a single magnetic field transduction signal output.